

FALSEWORK WELDING

The following guidelines are applicable to projects advertised after December 3, 2001.

Occasionally and depending on material availability, it is necessary to weld two steel members to produce a longer falsework member. The Falsework Manual makes two references to welding (Section 9-1.05A- "Welded Splices in Falsework Beams", and Section 9-1.08- "Miscellaneous Field Welding"). The importance of the welding inspection in conjunction with the public safety warranted the update to the existing specifications.

The new falsework welding specifications require Contractors to include the welding standard they intend to follow (e.g.: AWS D1.1, AWS D1.5, etc.) on the falsework plans. It also distinguishes between on-site and off-site welding:

On-site welding is any welding done at the project site for the purpose of erecting the falsework and adjoining two falsework members. On-site welding is further divided into minor or major welding.

Minor welding entails welding falsework members where the stress demand is less than 1000 lbs. per inch for each 1/8" (175 N per mm for each 3mm) of fillet weld. In such a case the method of inspection need not be called out on the plans.

Major welding involves stress demand level above 1000 lbs. per inch for each 1/8" (175 N for each 3mm) requirement for fillet weld or other weld types utilized and must conform to AWS D1.1 or other recognized welding standard. The falsework working drawings should specify the welding standard to be utilized and the Contractor shall follow the welding and inspection standards. Generally these would include; procedure specification for qualifying the weld, certification procedure for welders and inspection utilizing certified welding inspector. Most specifications only require visual inspection for this type of weld (e.g.: pipe columns, pile splices).

In addition to the major welding requirements above, the specifications also require that for beams (stringers) welded on-site, the Contractor shall perform nondestructive testing (NDT). At the option of the Contractor, either ultrasonic testing (UT) or radiographic testing (RT) shall be used as the method of NDT for each field weld

and any repair made to a previously welded splice in a steel beam. Testing shall be performed at locations selected by the Contractor. The length of a splice weld where NDT shall be performed shall be a cumulative weld length equal to 25 percent of the original splice weld length. The cover pass shall be ground smooth at the locations to be tested. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded non-tubular connections subject to tensile stress. If repairs are required in a portion of the weld, additional NDT shall be performed on the repaired sections. The NDT method chosen shall be used for an entire splice evaluation including any required repairs. This specification applies to beams subjected to flexural stresses (stringers, cap and sill beams). For the purpose of this memorandum, flexural and non-flexural members are defined as following:

- Flexural falsework members can be identified as those for which the applied loading results in a bending stress (moment resisting members) that governs the design and where shear/axial stresses are considered a secondary component of the applied load (e.g.: stringers, caps, sill beams).

- Non-flexural falsework members can be identified as those for which the applied loading results in a shear/axial stress that governs the design and where the bending stress is a secondary component of the applied load (e.g.: pipe columns, pile splices).

Off-site falsework member welding is defined as any previous weld/splice that is made prior to the member being shipped to the site. In such cases the Contractor shall perform any necessary testing and inspection required to certify the ability of the falsework members to sustain the stresses imposed by the falsework design. This effort shall be at the discretion of the Contractor and their falsework design engineer of record.

In all cases above, the specifications require that the contractor shall certify in writing the ability of the falsework to carry the loads imposed on it, shall be signed by a Civil Engineer licensed in the State of California, and shall be provided to the Engineer before any concrete is placed.